

Missouri Department of Natural Resources

Total Maximum Daily Load Information Sheet

Eleven Point River

Waterbody Segment at a Glance:

County: Howell
Nearby Cities: Willow Springs
Length of impairment: 0.4
Pollutant: Chlorine
Source: Willow Springs WWTP

Note: Eleven Point River was added to the 2002 303(d) list for Mercury. See the Mercury Information Sheet.



State map showing location of watershed

TMDL Priority Ranking: TMDL Completed 2001

Description of the Problem

Beneficial uses of the Eleven Point River

- Livestock and Wildlife Watering
- Protection of Warm Water Aquatic Life (Cool Water Fishery)
- Protection of Human Health associated with Fish Consumption

Use that is impaired

- Protection of Aquatic Life (Cool Water Fishery)

Standards that apply

- The specific criteria (standards) for chlorine are found in Missouri's Water Quality Standards (WQS), 10 CSR 20-7.031 Table A, page 17. The numeric criteria for Cool Water Streams are the same as for Warm Water Streams. The standard is 0.01 milligrams per liter (mg/L or parts per million), expressed as total residual chlorine (TRC).
- Antidegradation Policy – Outstanding Natural Resource Waters are classified in the WQS as "Tier Three Waters". For these waters, no degradation of water quality is allowed. 10 CSR 20-7.031(2)

Background Information and Water Quality Data

The Eleven Point River is designated an "Outstanding National Resource Waters" (found in WQS 10 CSR 20-7.031 Table D) from the headwaters near Willow Springs in Howell County to Highway 142 in Oregon County. Outstanding National Resource Waters are "Waters which have outstanding national recreational and ecological significance. These waters shall receive special protection against any degradation in quality. Congressionally designated rivers,

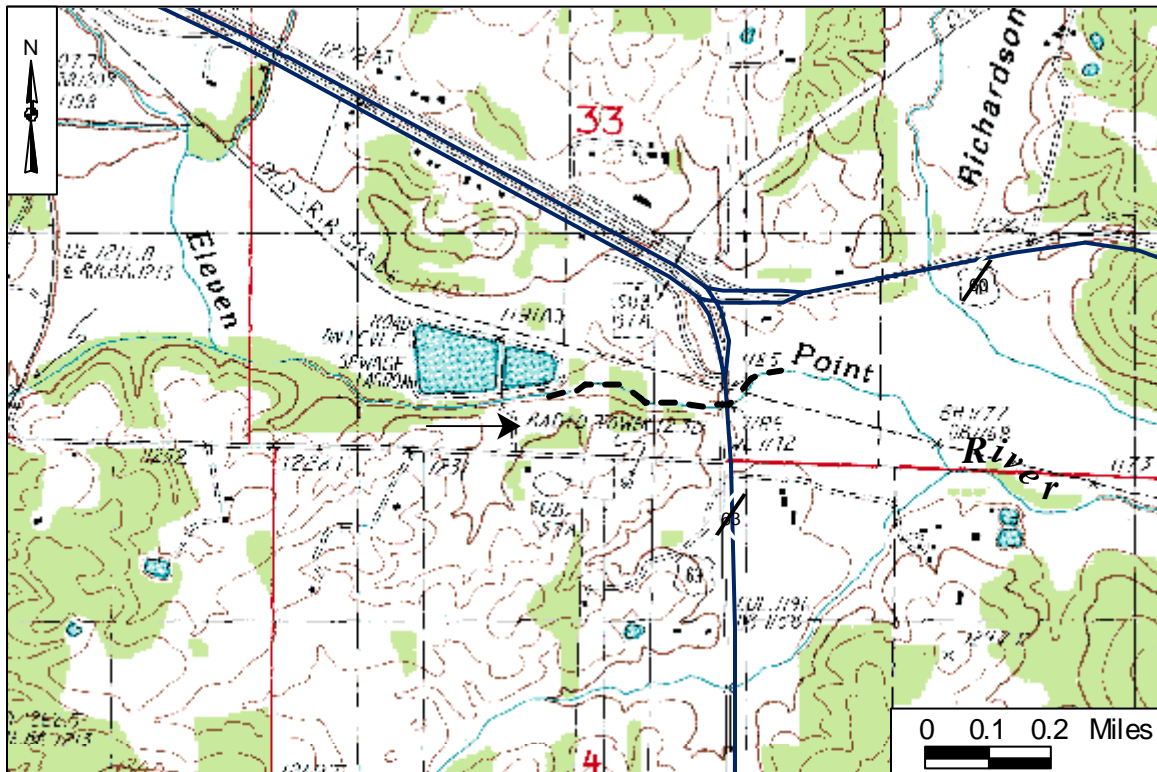
including those in the Ozark national scenic riverways and the wild and scenic rivers system are so designated.” 10 CSR 20-7.031 (1) (O).

The effluent discharged from the Willow Springs Wastewater Treatment Plant (WWTP) dominates this reach of the Eleven Point River when water levels are low. Low flow conditions usually occur during late summer and early fall, when rain is less frequent. The presence of chlorine in the stream under low flow conditions creates an unsuitable environment for most species of fish and other aquatic life. Missouri Department of Natural Resources’ Stream Survey Sampling Reports from 1990 and 1993 noted a chlorine odor, a light colored stream bottom, and no algae, aquatic invertebrates or fish immediately downstream of the treatment plant.

This part of the Eleven Point River is a “losing” stream. This is a stream where much or all of the flow can go underground and come into contact with groundwater. Missouri’s WQS require all discharges to losing streams be disinfected to prevent bacterial contamination of drinking water wells. The Willow Springs WWTP disinfects the water discharged from the plant with chlorine. State standards also require dechlorination (a process that removes chlorine) when discharging to a stream the size of the Eleven Point River.

The Willow Springs WWTP permit has required dechlorination since July 1999. This permit allows a monthly average and daily maximum of 0.01 milligrams per liter (mg/L) of Total Residual Chlorine (TRC) in the effluent, which is protective of aquatic life. Quarterly monitoring of TRC in the effluent is also required. Willow Springs met the TRC standard in their December 2000 monitoring report for the first time. The U.S. Environmental Protection Agency approved this TMDL January 12, 2001. The Department of Natural Resources inspected the stream during the summer of 2001 and May 2004. There were no chlorine toxicity problems in the stream. Based on the findings of these surveys, this stream will be requested for deletion during the next listing cycle. See a map of the impaired part of the river below.

Willow Springs WWTP and the Impaired Segment of the Eleven Point River in Howell County, Missouri



----- Impaired segment → Direction of flow

For more information call or write:

Missouri Department of Natural Resources

Water Protection Program

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